FEMA

Water on the wrong side of the levee?

Snohomish County, Washington

Snohomish County, WA - Severe flooding in western Washington State in early January 2009, brought on by heavy rainfall and warm temperatures that melted December's snow, posed the first test for the flood drainage gates installed 15 months earlier in the levee along the lower Stillaguamish River ("Old Stilly") south of Stanwood. The floodgates passed that test with "flying colors," according to Max Albert of the Stillaguamish Flood Control District (SFCD). Albert was referring to how quickly – in about half the time as during previous floods – that floodwaters trapped behind the levee drained through the gates and off Marine Drive and the Burlington Northern Santa Fe (BNSF) railroad tracks.

The Stillaguamish River floods approximately every three years, with overbank flows and extensive inundation of the floodplain. Floodwaters that overtop the north bank of the Stillaguamish below Silvana naturally flow northwesterly down the valley toward Stanwood. Historically, these floodwaters drained back to the river through Irvine Slough, a wide natural floodway and the shortest distance to saltwater. As development in Stanwood and the lower part of the river basin proceeded, however, obstructions to flow in this floodway reduced its capacity and the efficiency with which the slough could carry water back to the river. Millions of cubic feet of floodwaters, trapped between the north valley wall and the river levees, backed up the valley south of Stanwood. Water levels rose rapidly, commonly by more than three feet per hour, and after the flood crest the water drained out slowly over a period of several days.

The trapped floodwaters had several effects, ranging from inconvenience to costly damages, including extended closures of the BNSF railway line and Marine Drive, which is traveled by more than 5,000 vehicles each day; recurring damage and potential failure of city and SFCD levees; saturation of agricultural fields; stranding of salmon; and prolonged isolation of residents, posing risks to health and safety.

The SFCD, which maintains the levees and drainage systems in a 6,000-acre area of the lower valley between Silvana and Stanwood, was formed in 1992. In 2005, in an effort to eliminate or at least lessen the effects of future floods, the SFCD proposed construction of a flood drainage gate in the existing levee of the Stillaguamish River Old Channel near Stanwood. With a grant from the Federal Emergency Management Agency (FEMA), $30,000 from the City of Stanwood, and technical assistance from Snohomish County, the SFCD built the "Old Stilly Gate" in September 2007. The "gate" consists of a 130-foot-long concrete section, with 10, 5-foot by 10-foot, top-hinged hatches installed within the levee. A riprap (large angular rock) apron protects the levee bank on the discharge (river) side. The floodgate is self-actuating: If the water level behind the levee is higher than the river, the hatches open and water drains to the river. If the river is higher than the water behind the levee, the hatches close to prevent flooding from the river.

Quick Facts

Sector:
Public

Cost:
$155,000.00 (Estimated)

Primary Activity/Project:
Flood Control

Primary Funding:
Hazard Mitigation Grant Program (HMGP)